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RECORDED

A.D. 1824 N° 5012.

Manufacture of Vinegar.

HAM'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN HAM, of West Coker, in the County of Somerset, Vinegar Maker, send greeting.

WHEREAS His present most Excellent Majesty King George the Fourth, by His Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Seventh day of October, in the fifth year of His reign, did, for Himself, His heirs and successors, give and grant unto me, the said John Ham, His especial licence that I, the said John Ham, my eñors, adñors, and assigns, or such others as I, the said John Ham, my eñors, adñors, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, my Invention of "AN IMPROVED PROCESS OF MANUFACTURING VINEGAR;" in which said Letters Patent there is contained a proviso obliging me, the said John Ham, by an instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, and to cause the same to be inrolled in His Majesty's High Court of Chancery within four calendar months next and immediately after the date of the said in part recited Letters Patent, (as in and by the same) reference being thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said John Ham, do hereby declare the nature of my said Invention, and the

Ham's Improved Process of Manufacturing Vinegar.

manner in which the same is to be performed, by the following description thereof (that is to say) :—

In the centre of the upper head or cover of any vat or cask standing on one end, or other utensil or vessel similarly situated, I make a hole large enough to admit a pump of wood or of any metal or material not acted upon 5 by the acetic acid, and rather longer than the whole length or depth of the said vat or other vessel, supporting the said pump either on the bottom of the said vat or vessel, or otherwise on the top thereof by a hoop or circular collar of any material firmly fastened around the pump, and which hoop or collar works into the groove of another hoop or collar fixed immovably on 10 the upper part of the head or cover of the said vat or other vessel, in either case allowing the said pump freely to turn or revolve on its axis, and a sufficient space underneath or in the side of the pump to draw the liquor to be acidified or made into vinegar freely through it. About one or two inches below or beneath the upper head or cover of the said vat or vessel, one, two, 15 or more spouts (but I recommend two only), having their ends or mouths closed, are fixed in the side of the said pump, projecting therefrom in a horizontal direction as far as the side of the said vat or vessel will conveniently admit, so that they can freely revolve with the pump whilst turning on its centre or axis. These spouts are pierced with a number of small holes. The 20 upper part, but not the whole, (generally the upper half) of the said vat or other vessel, nearly as high as the said spouts (so, however, as to interpose no obstacle to their free revolution), is now to be filled with birch twigs, laid horizontally, of the size generally made into brooms, or with any other twigs or other materials (not acted upon by the acetic acid) which will present an equal 25 surface for the liquor to run over and still leave equal interstices. This bed of twigs or other materials is supported by beams or joints and hurdles, or by a false bottom full of large holes, or by any other method which will allow a sufficient space to contain the liquor below, and a free access or current of air through the twigs or other materials. The liquor to be acidified (which 30 may be any fluid whatever which has recently undergone the vinous fermentation) is now to be put into the said vat or other vessel in such quantity that the surface of it shall remain somewhat below the support of the said bed of twigs or other materials, so that a column of air shall at all times be interposed between both. Just above the surface of the liquor a hole is made in 35 the side of the said vat or other vessel, allowing free ingress to the atmospheric air which will ascend through the bed of twigs or other materials, or a pipe is fixed in such hole, and conducted to a bellows, air pump, or other mechanical contrivance to extract the said air, the place of which will be

Ham's Improved Process of Manufacturing Vinegar.

supplied with fresh air entering through the top of the pump or through an aperture in the head or cover of the said vat or vessel, or the air may be extracted from above the bed of twigs or other materials, and the fresh supply allowed to enter beneath it, or it may be forced through the said bed, either
5 from beneath or above. In either of these cases the air must flow or be forced through the twigs or other materials as fast as it is rendered incapable of supporting combustion (which may be ascertained by placing a lighted candle therein or in contact with the air at its point of egress), but not faster. The twigs must be occasionally removed and replaced, which I generally
10 cause to be done every three months. I keep the liquor to be acidified in the vat or vessel at the temperature of from eighty to one hundred degrees of Fahrenheit's thermometer, (but I recommend it to be kept at one hundred degrees as nearly as possible,) by steam conveyed into and through a pipe of pewter or other material not acted upon by the acetic acid, which passes
15 through the said vat or vessel, and which makes one or more circumvolutions beneath the surface of the liquor contained therein. The pump is then to be worked either by hand or by a crank, or by any mechanical power or contrivance whatever, and at the same time made to revolve on its axis by the hoop or collar already mentioned as fixed to it, having cogs thereon, and
20 working into another cog'd wheel, or by any other known or usual method, so that the liquor to be acidified shall, by means of the spouts and of the rotatory motion of the pump, be dispersed in all possible directions over the surface of the bed of twigs or other materials, meeting or coming in contact in its passage through it with fresh supplies of atmospheric air, which in general, by con-
25 tinual action for the space of from fifteen to twenty days or thereabouts, converts the said liquor into perfect vinegar.

I claim no exclusive right to the manner of giving motion to any part of the apparatus or machinery, nor to any system of alternate pumping or changing the liquor from one cask to another over what is called "rapes," or any
30 other substances, in the manner already practised or described by Boerhaave and others, nor to any particular method of heating the fluid to be acidified; but I protest against the use or introduction of any mechanical or other method, contrivance, or principle whatever, by which twigs or other materials presenting an extensive surface can be wholly and constantly kept wetted by
35 the vinous liquor to be acidified for the purpose of forming vinegar, (and I claim the exclusive right to this process for no other purpose,) so that a current or shower of the said liquid, and also a current of atmospheric air, can and shall be simultaneously passing over, in, or through all parts and interstices of the said twigs or other materials in any direction, as a resemblance of and an

Ham's Improved Process of Manufacturing Vinegar.

infringement on my present Patent. And I assert the utility of my said Patent to consist in enabling me, and all persons who obtain a licence from me to use it, to manufacture vinegar in large masses, and with greater certainty, with more expedition, and with fewer utensils than by any method or process hitherto known or practised.

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In witness whereof, I, the said John Ham, have hereunto set my hand and seal, this Twenty-fifth day of January, in the year of our Lord One thousand eight hundred and twenty-five.

JOHN (L.S.) HAM.

BATTEN, Extra.

AND BE IT REMEMBERED, that on the Twenty-fifth day of January, 10
in the year of our Lord 1825, the aforesaid John Ham came before our
said Lord the King in His Chancery, and acknowledged the Specification
aforesaid, and all and every thing therein contained and specified, in form
above written. And also the Specification aforesaid was stamped according
to the tenor of the Statute made for that purpose.

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Inrolled the Twenty-sixth day of January, in the year of our Lord
One thousand eight hundred and twenty-five.

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